Technology Opportunity
Glenn Research Center • Cleveland • Ohio
Technology Transfer & Partnership Office
TOP3–00213

Engine Research Building

Facility

The Engine Research Building (ERB) has over 60 test rigs supporting research in all aspects of engine development, providing superior testing of turbomachinery, aerodynamics flow physics, aeropropulsion heat transfer, mechanical components, and combustor facilities.

Facility Description

Turbine Facilities—There are 11 turbomachinery facilities and laboratories that specialize in conducting fundamental and applied research aeronautical gas turbine engines.

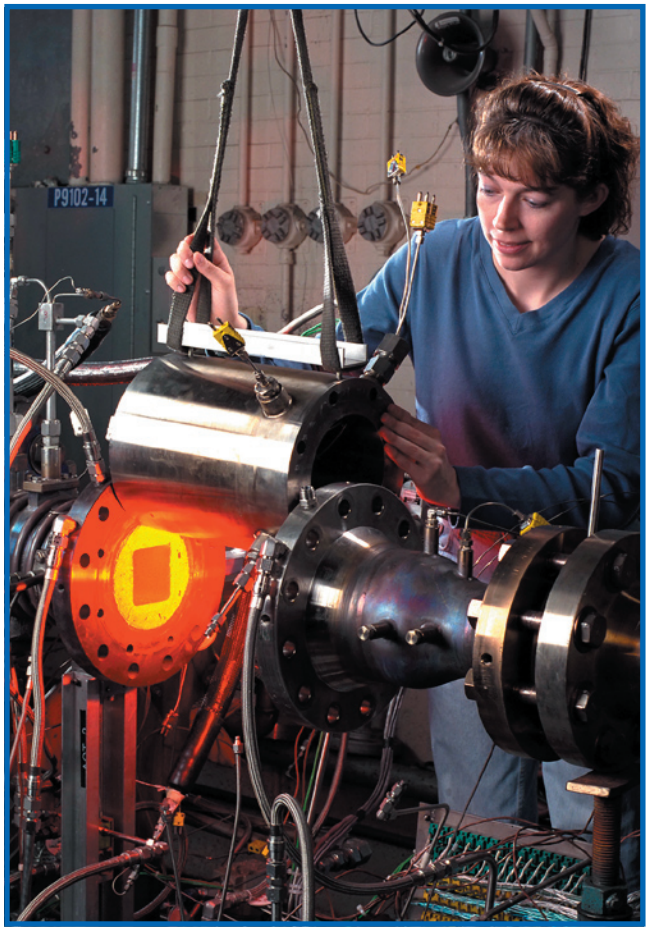
Combustor Facilities—There are 15 combustor and aerochemistry technology test facilities and laboratories. Fundamental and applied research is aimed at advancing the technology of the combustion processes of aeronautical gas turbine engines and advanced space transportation concepts.

Flow Physics Facilities—There are seven aerodynamic flow physics technology facilities. These facilities are used to conduct research advancing the understanding of subsonic to supersonic flow physics phenomena fundamental to ducted wall-bound flows.

Heat Transfer Technology—There are six aeropropulsion heat transfer technology facilities. These facilities provide testing capability for experiments to advance fundamental understanding of the heat transfer process and to contribute to the predictive capability for heat transfer in aeronuatical and space propulsion systems.

Facility Benefits

- Tailored engine test conditions in high-temperature and high-pressure combustion environments
- Non-intrusive laser-based diagnostic measurement equipment
- In-house and private industry research programs
- Experienced staff of technicians, engineers, researchers, and operators



CE–9B–B high temperature flametube injector test stand (combustor).

Commercial Applications

- Numerous facilities specializing in turbomachinery, tribology, flow physics, combustion, aerochemistry, mechanical components, and heat transfer

Programs and Projects Supported

- Circle Segment Nozzle Test
- Advanced Integrated Inlet Diffuser
- Two-Stage Compressor

Facility Testing Information

http://facilities.grc.nasa.gov

Contacts

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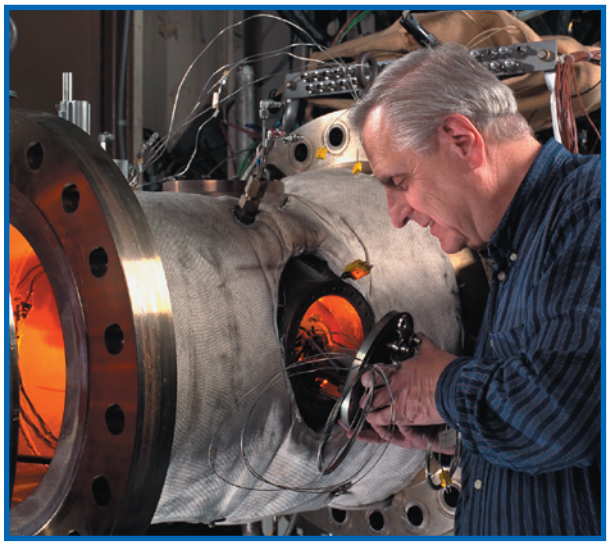
Capabilities

Combustor Facilities—ERB, ECRL, ASCR, and RCL					
Facility	Test emphasis	Maximum pressure, (PSIG)	Maximum airflow (lb/s)	Non vitiated heated air, °F	Maximum exhaust temperature, °F
CE–5B–1	Sector	60 to 275	2 to 12	500 to 1350	3200
CE–5B–2	Flametube	60 to 400	0.6 to 5	500 to 1350	3200
CE–9B–A	Sector	120 to 450	5 to 30	750 to 1100	3400
CE–9B–B	Flametube	120 to 450	1 to 15	750 to 1100	3400
ASCR Leg 1	Sector	50 to 900	3 to 50	500 to 1200	3400
ASCR Leg 2	Flametube	50 to 900	1 to 10	500 to 1200	3400
ECRL–1B	Augmentors	5 to 150	5 to 60	100 to 600	1900
RCL	Flametube	0 to 350	0.5 to 4	500 to 1200	3000



CE–9B–A high temperature sector injector test stand (combustor).